

For Receiving Office use only

PCT

## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference  
(if desired) (12 characters maximum) PA0078WO

**Box No. I TITLE OF INVENTION**  
INITIATOR

**Box No. II APPLICANT**

☐ This person is also inventor

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

TOYOTA JIDOSHA KABUSHIKI KAISHA  
1, Toyota-cho, Toyota-shi, Aichi 471-8571 Japan

Telephone No.  
0565-23-6717

Facsimile No.  
0565-23-5748

Teleprinter No.

Applicant's registration No. with the Office

State (that is, country) of nationality:

Japan

State (that is, country) of residence:

Japan

This person is applicant  
for the purposes of:

☐

all designated  
States

☒

all designated States except the  
United States of America

☐

the United States  
of America only

☐

the States indicated in the  
Supplemental Box

**Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)**

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

TAKAHARA Isamu  
c/o TOYOTA JIDOSHA KABUSHIKI KAISHA  
1, Toyota-cho, Toyota-shi, Aichi 471-8571 Japan

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box  
is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

Japan

State (that is, country) of residence:

Japan

This person is applicant for  
the purposes of:

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the United States of America

☒

the United States  
of America only

☐

the States indicated in the  
Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

**Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒

agent

☐

common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

OBA Sakio  
KATO Shinji  
Prospec Patent Firm  
2<sup>nd</sup> Floor, NAGOYA-KS Building, 1-18, Taiko 3-chome,  
Nakamura-ku, Nagoya-shi, Aichi 453-0801 Japan

Telephone No.  
052-459-5366

Facsimile No.  
052-459-5368

Teleprinter No.

Agent's registration No. with the Office

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

## Continuation of Box No. III

## FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet should not be included in the request.

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

YOSHIGAI Akitoshi  
c/o TOYOTA SHATAI KABUSHIKI KAISHA  
100, Kanayama, ichiriyama-cho, Kariya-shi, Aichi 448-8666 Japan

This person is:

- ☐ applicant only  
☒ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

Japan

State (that is, country) of residence:

Japan

This person is applicant for the purposes of:

☐

all designated States

☐

all designated States except the United States of America

☒

the United States of America only

☐

the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

NODE Kazuo  
c/o HINO MOTORS, LTD.  
1-1, Hinodai 3-chome, Hino-shi, Tokyo 191-8660 Japan

This person is:

- ☐ applicant only  
☒ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

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State (that is, country) of residence:

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☐ inventor only (If this check-box is marked, do not fill in below.)

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State (that is, country) of residence:

This person is applicant for the purposes of:

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all designated States

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all designated States except the United States of America

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Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

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- ☐ applicant only  
☐ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

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State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

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all designated States

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all designated States except the United States of America

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the United States of America only

☐

the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on another continuation sheet.

**Box No. V DESIGNATION OF STATES** *Mark the applicable check-boxes below; at least one must be marked.*

The following designations are hereby made under Rule 4.9(a):

**Regional Patent**

- ☒ **AP** **ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZM Zambia, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT (*if other kind of protection or treatment desired, specify on dotted line*) \_\_\_\_\_
- ☒ **EA** **Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP** **European Patent:** AT Austria, BE Belgium, BG Bulgaria, CH & LI Switzerland and Liechtenstein, CY Cyprus, CZ Czech Republic, DE Germany, DK Denmark, EE Estonia, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, HU Hungary, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, RO Romania, SE Sweden, SI Slovenia, SK Slovakia, TR Turkey, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA** **OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (*if other kind of protection or treatment desired, specify on dotted line*) \_\_\_\_\_

**National Patent** (*if other kind of protection or treatment desired, specify on dotted line*):

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> <b>AE</b> United Arab Emirates _____                   | <input checked="" type="checkbox"/> <b>HR</b> Croatia _____                                   | <input checked="" type="checkbox"/> <b>OM</b> Oman _____                             |
| <input checked="" type="checkbox"/> <b>AG</b> Antigua and Barbuda _____                    | <input checked="" type="checkbox"/> <b>HU</b> Hungary _____                                   | <input type="checkbox"/> <b>PG</b> Papua New Guinea _____                            |
| <input checked="" type="checkbox"/> <b>AL</b> Albania _____                                | <input checked="" type="checkbox"/> <b>ID</b> Indonesia _____                                 | <input checked="" type="checkbox"/> <b>PH</b> Philippines _____                      |
| <input checked="" type="checkbox"/> <b>AM</b> Armenia _____                                | <input checked="" type="checkbox"/> <b>IL</b> Israel _____                                    | <input checked="" type="checkbox"/> <b>PL</b> Poland _____                           |
| <input checked="" type="checkbox"/> <b>AT</b> Austria _____                                | <input checked="" type="checkbox"/> <b>IN</b> India _____                                     | <input checked="" type="checkbox"/> <b>PT</b> Portugal _____                         |
| <input checked="" type="checkbox"/> <b>AU</b> Australia _____                              | <input checked="" type="checkbox"/> <b>IS</b> Iceland _____                                   | <input checked="" type="checkbox"/> <b>RO</b> Romania _____                          |
| <input checked="" type="checkbox"/> <b>AZ</b> Azerbaijan _____                             | <input type="checkbox"/> <b>JP</b> Japan _____  | <input checked="" type="checkbox"/> <b>RU</b> Russian Federation _____               |
| <input checked="" type="checkbox"/> <b>BA</b> Bosnia and Herzegovina _____                 | <input checked="" type="checkbox"/> <b>KE</b> Kenya _____                                     | <input type="checkbox"/> <b>SC</b> Seychelles _____                                  |
| <input type="checkbox"/> _____   | <input checked="" type="checkbox"/> <b>KG</b> Kyrgyzstan _____                                | <input checked="" type="checkbox"/> <b>SD</b> Sudan _____                            |
| <input checked="" type="checkbox"/> <b>BB</b> Barbados _____                               | <input checked="" type="checkbox"/> <b>KP</b> Democratic People's Republic of Korea _____     | <input checked="" type="checkbox"/> <b>SE</b> Sweden _____                           |
| <input checked="" type="checkbox"/> <b>BG</b> Bulgaria _____                               | <input checked="" type="checkbox"/> <b>KR</b> Republic of Korea _____                         | <input checked="" type="checkbox"/> <b>SG</b> Singapore _____                        |
| <input checked="" type="checkbox"/> <b>BR</b> Brazil _____                                 | <input checked="" type="checkbox"/> <b>KZ</b> Kazakhstan _____                                | <input checked="" type="checkbox"/> <b>SK</b> Slovakia _____                         |
| <input checked="" type="checkbox"/> <b>BY</b> Belarus _____                                | <input checked="" type="checkbox"/> <b>LC</b> Saint Lucia _____                               | <input checked="" type="checkbox"/> <b>SL</b> Sierra Leone _____                     |
| <input checked="" type="checkbox"/> <b>BZ</b> Belize _____                                 | <input checked="" type="checkbox"/> <b>LK</b> Sri Lanka _____                                 | <input checked="" type="checkbox"/> <b>SY</b> Syrian Arab Republic _____             |
| <input checked="" type="checkbox"/> <b>CA</b> Canada _____                                 | <input checked="" type="checkbox"/> <b>LR</b> Liberia _____                                   | <input checked="" type="checkbox"/> <b>TJ</b> Tajikistan _____                       |
| <input checked="" type="checkbox"/> <b>CH &amp; LI</b> Switzerland and Liechtenstein _____ | <input checked="" type="checkbox"/> <b>LS</b> Lesotho _____                                   | <input checked="" type="checkbox"/> <b>TM</b> Turkmenistan _____                     |
| <input checked="" type="checkbox"/> <b>CN</b> China _____                                  | <input checked="" type="checkbox"/> <b>LT</b> Lithuania _____                                 | <input checked="" type="checkbox"/> <b>TN</b> Tunisia _____                          |
| <input checked="" type="checkbox"/> <b>CO</b> Colombia _____                               | <input checked="" type="checkbox"/> <b>LU</b> Luxembourg _____                                | <input checked="" type="checkbox"/> <b>TR</b> Turkey _____                           |
| <input checked="" type="checkbox"/> <b>CR</b> Costa Rica _____                             | <input checked="" type="checkbox"/> <b>LV</b> Latvia _____                                    | <input checked="" type="checkbox"/> <b>TT</b> Trinidad and Tobago _____              |
| <input checked="" type="checkbox"/> <b>CU</b> Cuba _____                                   | <input checked="" type="checkbox"/> <b>MA</b> Morocco _____                                   | <input type="checkbox"/> <b>TZ</b> United Republic of Tanzania _____                 |
| <input checked="" type="checkbox"/> <b>CZ</b> Czech Republic _____                         | <input checked="" type="checkbox"/> <b>MD</b> Republic of Moldova _____                       | <input checked="" type="checkbox"/> <b>UA</b> Ukraine _____                          |
| <input checked="" type="checkbox"/> <b>DE</b> Germany _____                                | <input type="checkbox"/> <b>MG</b> Madagascar _____   | <input checked="" type="checkbox"/> <b>UG</b> Uganda _____                           |
| <input checked="" type="checkbox"/> <b>DK</b> Denmark _____                                | <input checked="" type="checkbox"/> <b>MK</b> The former Yugoslav Republic of Macedonia _____ | <input checked="" type="checkbox"/> <b>US</b> United States of America _____         |
| <input checked="" type="checkbox"/> <b>DM</b> Dominica _____                               | <input type="checkbox"/> _____  | <input type="checkbox"/> <b>UZ</b> Uzbekistan _____                                  |
| <input checked="" type="checkbox"/> <b>DZ</b> Algeria _____                                | <input checked="" type="checkbox"/> <b>MN</b> Mongolia _____                                  | <input checked="" type="checkbox"/> <b>VC</b> Saint Vincent and the Grenadines _____ |
| <input checked="" type="checkbox"/> <b>EC</b> Ecuador _____                                | <input checked="" type="checkbox"/> <b>MW</b> Malawi _____                                    | <input checked="" type="checkbox"/> <b>VN</b> Viet Nam _____                         |
| <input checked="" type="checkbox"/> <b>EE</b> Estonia _____                                | <input checked="" type="checkbox"/> <b>MX</b> Mexico _____                                    | <input checked="" type="checkbox"/> <b>YU</b> Serbia and Montenegro _____            |
| <input checked="" type="checkbox"/> <b>ES</b> Spain _____                                  | <input checked="" type="checkbox"/> <b>MZ</b> Mozambique _____                                | <input checked="" type="checkbox"/> <b>ZA</b> South Africa _____                     |
| <input checked="" type="checkbox"/> <b>FI</b> Finland _____                                | <input type="checkbox"/> <b>NI</b> Nicaragua _____  | <input checked="" type="checkbox"/> <b>ZM</b> Zambia _____                           |
| <input checked="" type="checkbox"/> <b>GB</b> United Kingdom _____                         | <input checked="" type="checkbox"/> <b>NO</b> Norway _____                                    | <input checked="" type="checkbox"/> <b>ZW</b> Zimbabwe _____                         |
| <input checked="" type="checkbox"/> <b>GD</b> Grenada _____                                | <input checked="" type="checkbox"/> <b>NZ</b> New Zealand _____                               |  |
| <input checked="" type="checkbox"/> <b>GE</b> Georgia _____                                |   |  |
| <input checked="" type="checkbox"/> <b>GH</b> Ghana _____                                  |   |  |
| <input checked="" type="checkbox"/> <b>GM</b> Gambia _____                                 |   |  |

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_

**Precautionary Designation Statement:** In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except the designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (*Confirmation (including fees) must reach the receiving Office within the 15-month time limit.*)

**Box No. VI PRIORITY CLAIM**

The priority of the following earlier application(s) is hereby claimed:

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country or Member of WTO	regional application:* regional Office	international application: receiving Office
item (1) 28.03.02	2002-92668	Japan		
item (2)				
item (3)				
item (4)				
item (5)				

☐ Further priority claims are indicated in the Supplemental Box.

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office) identified above as:

☒ all items    ☐ item (1)    ☐ item (2)    ☐ item (3)    ☐ item (4)    ☐ item (5)    ☐ other, see Supplemental Box

\*Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)): .....

**Box No. VII INTERNATIONAL SEARCHING AUTHORITY**

**Choice of International Searching Authority (ISA)** (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA /JP.....

**Request to use results of earlier search; reference to that search** (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year)

Number

Country (or regional Office)

**Box No. VIII DECLARATIONS**

The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration):

Number of  
declarations

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Box No. VIII (i)   | Declaration as to the identify of the inventor   | : |
| <input type="checkbox"/> Box No. VIII (ii)  | Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent             | : |
| <input type="checkbox"/> Box No. VIII (iii) | Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application | : |
| <input type="checkbox"/> Box No. VIII (iv)  | Declaration of inventorship (only for the purposes of the designation of the United States of America)                               | : |
| <input type="checkbox"/> Box No. VIII (v)   | Declaration as to non-prejudicial disclosures or exceptions to lack of novelty:  | : |

**Box No. IX CHECK LIST; LANGUAGE OF FILING**

This international application contains:

(a) in paper form, the following number of sheets:

request (including declaration sheets) : 5  
 description (excluding sequence listings and/or tables related thereto) : 13  
 claims : 3  
 abstract : 1  
 drawings : 6

Sub-total number of sheets : 28

sequence listings :  
 tables related thereto :  
*(for both, actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (c) below)* :

Total number of sheets : 28

(b) ☐ only in computer readable form (Section 801(a)(i))

- (i) ☐ sequence listings  
 (ii) ☐ tables related thereto

(c) ☐ also in computer readable form (Section 801(a)(ii))

- (i) ☐ sequence listings  
 (ii) ☐ tables related thereto

Type and number of carriers (diskette, CD-ROM, CD-R or other) on which are contained the

☐ sequence listings \_\_\_\_\_  
☐ tables related thereto \_\_\_\_\_

*(additional copies to be indicated under item 9(ii), in right column)*

This international application is accompanied by the following item(s) (mark the applicable check-boxes below and indicate in right column the number of each item):

Number of items

1. ☒ fee calculation sheet : 1
2. ☒ original separate power of attorney : 1
3. ☐ original general power of attorney :
4. ☐ copy of general power of attorney; reference number, if any: \_\_\_\_\_ :
5. ☐ statement explaining lack of signature :
6. ☐ priority document(s) identified in Box No. VI as item(s): \_\_\_\_\_ :
7. ☐ translation of international application into (language): \_\_\_\_\_ :
8. ☐ separate indications concerning deposited microorganism or other biological material :
9. ☐ sequence listing in computer readable form (indicate type and number of carriers)
  - (i) ☐ copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application) :
  - (ii) ☐ (only where check-box (b)(i) or (c)(i) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter :
  - (iii) ☐ together with relevant statement as to the identity of the copy or copies with the sequence listings mentioned in left column :
10. ☐ tables in computer readable form related to sequence listings (indicate type and number of carriers)
  - (i) ☐ copy submitted for the purposes of international search under Section 802(b-quater) only (and not as part of the international application) :
  - (ii) ☐ (only where check-box (b)(ii) or (c)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Section 802(b-quater) :
  - (iii) ☐ together with relevant statement as to the identity of the copy or copies with the tables mentioned in left column :
11. ☐ other (specify): \_\_\_\_\_ :

Figure of the drawings which should accompany the abstract: 2

Language of filing of the international application: Japan

**Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE**

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

For receiving Office use only

1. Date of actual receipt of the purported international application:	2. Drawings:  <input type="checkbox"/> received:  <input type="checkbox"/> not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	
4. Date of timely receipt of the required corrections under PCT Article 11(2):	
5. International Searching Authority (if two or more are competent): ISA /	
6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid	

For International Bureau use only

Date of receipt of the record copy by the International Bureau: